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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/099,953	03/19/2002	Yasuhiro Ayukawa	1517-0138P	6331
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EXAMINER GAKH, YELENA G				
ART UNIT		PAPER NUMBER		
1743				

DATE MAILED: 12/14/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/099,953

Applicant(s)

AYUKAWA ET AL.

Examiner

Yelena G. Gakh, Ph.D.

Art Unit

1743

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 27 October 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) 5,6,9-11,20 and 21 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 2-4, 7-8, 12-19 and 22 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_\_

### **DETAILED ACTION**

1. Amendment filed on 10/27/04 is acknowledged. Claim 1 is cancelled. Claims 2-22 are pending in the application, of which claims 5-6, 9-11 and 20-21 are withdrawn from consideration.

### ***Response to Amendment***

2. Objection to the specification and rejection of the pending claims is slightly modified in view of the amendment.

### ***Specification***

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. The specification is objected to as not being written "in such full, clear, concise, and exact terms as to enable any person skilled in the art to" to practice the invention in its best mode. It appears to be a literal translation into English from a foreign document and are replete with grammatical and idiomatic errors. Not only the language of the specification is unclear and confusing, the subject matter of the disclosure is not readily apprehensible.

The specification discloses: "first, a silver nitrate solution having silver nitrate dissolved in a solvent is mixed with a sodium acetate solution having sodium acetate dissolved in the solvent, to form silver acetate. Then, the mixed solution is subjected to first filtration to remove the silver acetate. Then, the solution is irradiated with electromagnetic waves or corpuscular rays to precipitate silver sulfide-containing silver compounds and silver. Then, the solution is subjected to second filtration to remove the silver compounds and silver. Then, a nitrogen gas is allowed to flow into the solution to remove dissolved oxygen. Finally, an aldehyde or ammonia is added for preventing oxidation and improving the long-term shelf life" (page 3, lines 23-28

Art Unit: 1743

and page 4, lines 1-6). First, silver acetate is precipitated from the mixture of silver nitrate and sodium acetate only under certain conditions, i.e. when "a concentrated solution of either silver ion or acetate ion is added to the mixture", see "Solubility of Silver Acetate". Second, if silver acetate is removed from the solution, then what is remained in it? How irradiating the solution with electromagnetic waves or X-rays can cause precipitation of sulfide-containing silver compounds and silver, if there is no silver in the solution to begin with? After second filtration, blowing nitrogen gas through solution and addition of an aldehyde or ammonia to the solution, according to the method disclosed, the only components of the sulfur-capturing liquid would be aldehyde or ammonia dissolved in solvents, in which original reagents (silver nitrate and sodium acetate) were dissolved. It is not clear, what function such liquid has in the method of determining concentration of sulfur in an oil sample, and how it can be used in preparing the oil sample for such analysis.

The rest of the specification concerning the preparation of the oil sample for X-ray fluorescence analysis, as well as the analysis itself is written in the same unclear and indefinite language and is not readily comprehensible.

### ***Claim Rejections - 35 USC § 112***

5. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

6. Claims 22, 2-4, 7-8 and 12-19 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for mixing silver nitrate and sodium acetate in the presence of concentrated solution of silver ion or acetate ion, does not reasonably provide enablement for other conditions. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to practice the invention commensurate in scope with these claims, see the reference above. Moreover, sulfide-containing silver compounds can be formed only when there is an excess of silver ions in solution after silver acetate is precipitated, which is not disclosed in the specification. The specification does

Art Unit: 1743

not disclose, why silver acetate should be formed and removed from the solution, and what is remained in the solution to form the sulfur-capturing liquid.

Further, the specification does not enable anyone of ordinary skill in the art to precipitate silver sulfide from a solution, which is obtained by precipitating silver acetate upon mixing silver nitrate and sodium acetate, since no sulfur is supposed to contain in such solutions.

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

8. Claims 22, 2-4, 7-8 and 12-19 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 22 recites, "irradiating the mixed solution to precipitate silver sulfide and silver, which is removed from the missed solution ... and containing the remaining silver nitrate and sodium acetate solution". Everything is unclear in this recitation. First, it is not clear, how it is possible to precipitate silver sulfide, if only solutions of silver nitrate and sodium acetate are provided in the first step? Where are the sulfide ions coming from? Second, it is not clear, what is the "missed solution". Is it the "mixed solution"? Also, what is "silver, which is removed from the mixed solution"? When was it removed, and how did it get into the solution? Finally, what is "the remaining silver nitrate and sodium acetate solution"? As far as the examiner understands, there is not such solution remained, since silver acetate is precipitated and removed from such solution.

In claims 2 and 4 the limitation related to the oil sample cannot be considered a further limitation to the parent claim, since the oil sample is not a part of the claim. In the limitation related to the solvent, if the solvent is a C<sub>1-8</sub> alcohol, then why should it contain sulfur? What "catalyst" is meant at the end of the claim?

Claim 3 has the same problems as claim 22.

Claims 7 and 12 recite the "sulfur-containing liquid of claim 22", while claim 22 recites forming "the sulfur-capturing liquid substantially free of sulfur". Therefore, claim 7 contradicts claim 22. It is not clear, what "the silver compounds and silver other than silver sulfide-

Art Unit: 1743

containing sulfur compounds” are recited in the claim, if silver acetate formed from silver nitrate and sodium acetate is precipitated from the solution?

Claims 8 and 13 recite C<sub>1-8</sub> alcohol, which is not supposed to contain any sulfur, “said sulfur-containing liquid”, which does not have antecedent basis, “the catalyst”, which also does not have antecedent basis.

In claims 14 and 17 it is not clear, how mixing a silver nitrate solution and a sodium acetate solution can give a “sulfur-containing liquid”. Also, “a silver nitrate solution” means that it is “silver nitrate dissolved in a solvent”, and therefore it is not necessary to repeat this twice. The same is true for sodium acetate.

Claims 15 and 18 recite C<sub>1-8</sub> alcohol, which is not supposed to contain any sulfur. Also, it is not clear, what is “a C<sub>1-8</sub> alcohol for the sulfur-containing liquid”?

### ***Response to Arguments***

9. Applicant's arguments filed 10/27/04 have been fully considered but they are not persuasive. While the examiner agrees that the term “sulfur-capturing liquid” is more suitable than “liquid catalyst”, neither its preparation, nor its application is clear from the disclosure. It is not apparent, how mixing solutions of silver nitrate and sodium acetate can yield a sulfur-containing liquid, not mentioning that their precipitation requires special conditions. It is not clear, how irradiation, and what type of irradiation can cause a precipitation of silver sulfide, if there are sulfide ions in the solution. From the Applicants' remarks it is not apparent, why the resultant solution of all the steps recited in claim 22 “is a mixed solution of a silver nitrate solution and a sodium acetate solution”; such solution supposedly gives silver acetate, which is precipitated, as it is recited in the first step. Further, it is not clear, what the expression “silver sulfide-containing silver” might mean?

The specification is not written in a clear and definite language, and therefore the essence of the invention is not adequately disclosed.

***Conclusion***

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Yelena G. Gakh, Ph.D. whose telephone number is (571) 272-1257. The examiner can normally be reached on 9:30 am - 6:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jill A. Warden can be reached on (571) 272-1267. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Yelena G. Gakh  
12/8/04

